Maine Childhood Lead Poisoning Prevention Program

Childhood Lead Poisoning in Maine

2008 Update December 17, 2008

Did you know?

- **In 2003, there were 220 newly identified children with an elevated blood lead level.**
- **In 2007, there were less than 150.**
- **4 0% of children newly identified with elevated blood lead came from just five Maine communities, where they mostly lived in rental housing.**
- **Children on MaineCare are about twice as likely to have an elevated blood lead level as compared to other children.**

Inside this Update

Lead Poisoning

Lead poisoning remains one of the major environmental hazards threatening children in Maine. Children under the age of six are at the greatest risk for lead poisoning because their still developing brains and bodies can be adversely effected by very small amounts of lead. Additionally, their crawling and playing on the floor, their hand-to-mouth activity, puts them at greater risk of ingesting lead paint dust and chips. Lead poisoning often occurs with no obvious symptoms, it frequently goes unrecognized.

Lead poisoning can lead to physical and mental disabilities. More concerning is that even low levels of lead poisoning may cause lowered IQ, learning disabilities, speech delay, hearing impairment, hyperactivity, and aggressive behavior. Because of lead's effect upon a child's brain, hundreds of Maine children may fail to reach their full potential and their communities do not realize the full benefits of the child's long-term productivity. Studies have shown children who are lead poisoned are more likely to become involved with the juvenile justice system and that lead poisoned children are more likely to drop out of school before graduating.

Lead poisoning is a completely preventable disease.

"The harmful effects of lead poisoning can be permanent.

The best remedy for lead poisoning is to prevent it before it occurs."

Screening Children for Elevated Blood Lead Levels (eBLL)

Maine and Federal laws require that all children enrolled in MaineCare must have a blood lead level test at 1 year of age and again at 2 years of age. All children of the same ages who are not enrolled are also required to have a blood lead test unless a health care provider determines it is not needed.

This testing (or screening) of blood lead levels in children provides data that is used to evaluate progress toward the goal of eliminating childhood lead poisoning.

Since 2003, the percent of 1 year old children screened for blood lead has remained stable at 50 percent. For 2 year olds, the screening rate has remained stable at roughly 25 percent (Figure 1).

Statewide, 67 percent of children have been tested at least once by the age of three. For several counties, the percentage of children with at least one blood lead test by age three is over 80 %(Figure 2).

"Two-thirds of Maine children are likely to get a blood lead test by 3 years of age, but far less are tested <u>both</u> at age 1 <u>and</u> 2 years."

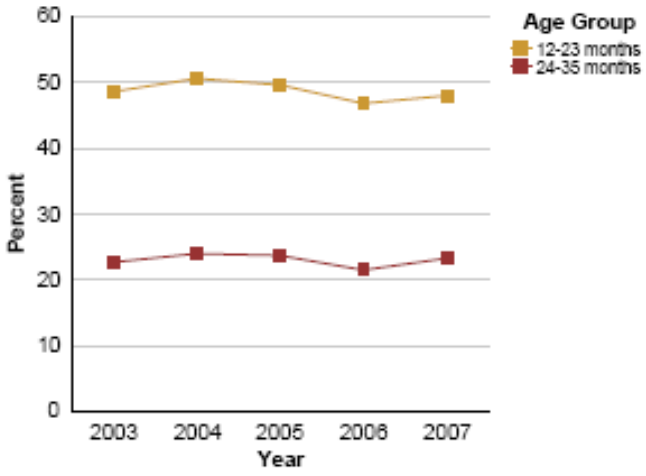

FIGURE 1. Percent of children screened for blood lead, by age group and by year.

"Screening rates of children for blood lead levels have remained fairly constant for the years 2003—2007."

County	Percent
Franklin	81.7
Oxford	80.2
Washington	80.0
Somerset	80.4
Aroostook	80.2
Piscataquis	72.0
Kennebec	70.8
Sagadahoc	70.3
Androscoggin	69.5
Penobscot	65.3
York	63.8
Hancock	58.7
Cumberland	57.8
Waldo	57.1
Lincoln	53.5
Knox	53.1
State of Maine	67.1

FIGURE 2. Percent of children screened for blood lead at least once by 3 years of age, by county.

"Statewide, two-thirds of children have been tested for lead by age three years."

Trends for Numbers of Children with Elevated Blood Lead Levels (eBLL)

There is no "safe" level of lead in blood. A blood lead level of 10 micrograms lead per deciliter of blood is widely referred to as an "elevated blood lead level" or "eBLL". It is a level that triggers public health action. At these blood lead levels, studies have found interventions are likely to be successful in identifying lead hazards and lowering blood lead levels.

National data suggest there are an estimated 1000 Maine children under the age of six that have an elevated blood lead level (eBLL).[1]

The annual number of newly-identified children with an eBLL has declined over the past 5 years (Figure 3).[2]

This decline is also apparent when viewed as the percent of children screened, indicating that the decline is not a consequence of a change in screening rates (Figure 4).

For the five year period 2003 – 2007, a total of 913 children were newly identified as having an elevated blood lead.

"There are roughly 1000 Maine children under six years that have an elevated blood lead level (eBLL)."

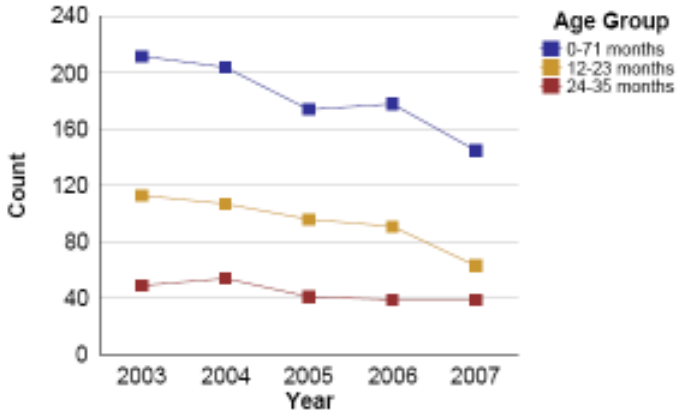

FIGURE 3. Number of newly identified children with an elevated blood lead level, by age group and by year.

"The number of newly identified children with an eBLL declined over the years 2003 to 2007."

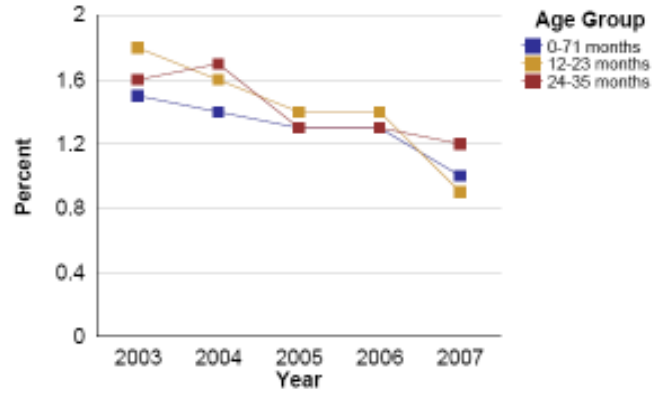

FIGURE 4. Percent of newly identified children with an elevated blood lead level among those screened, by age group and by year.

"The percentage of newly identified children with an eBLL relative to those screened has declined over the years 2003 to 2007."

Communities with a High Density of Children having Elevated Blood Lead Levels

There are areas of Maine that have a greater burden of children with elevated blood levels (Figure 5).

Just five communities have accounted for roughly 40% of all newly identified children with eBLLs over the years 2003 to 2007. These five communities are:

- Sanford
- Biddeford/Saco
- Portland/South Portland/ Westbrook
- Lewiston/Auburn, and
- Bangor.

These same five communities also have higher percentages of children with elevated blood lead levels among those screened, when compared to the statewide average of 1.3 percent (Table 1). We therefore refer to this communities as having a "high density" of children with eBLLs.

"Just five Maine communities account for 40% of all newly identified children with an elevated blood lead level."

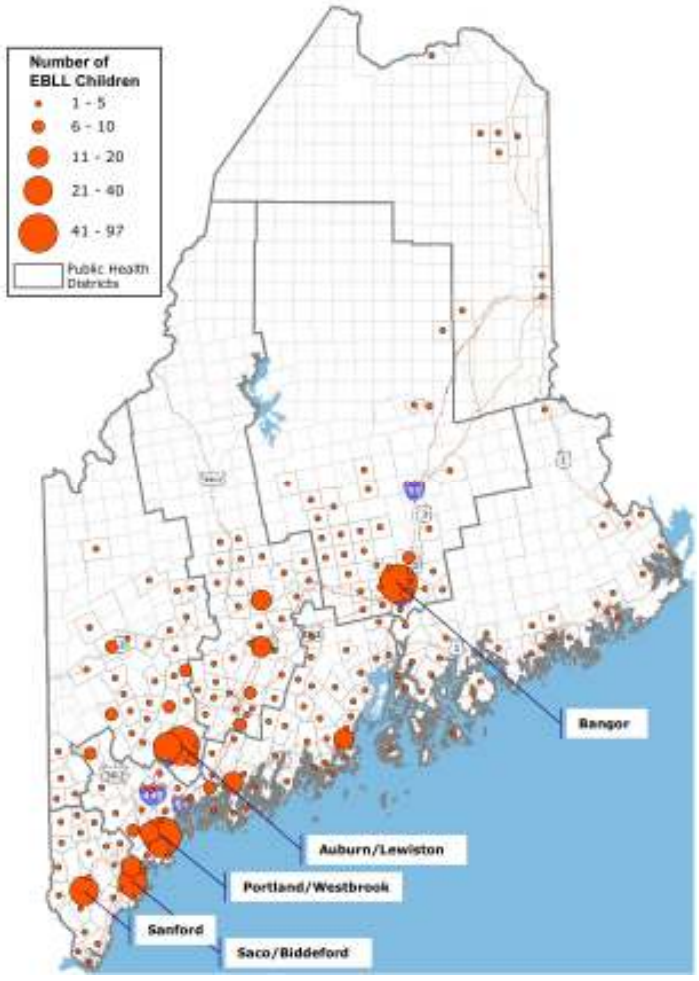

FIGURE 5. Number of newly identified children under 6 years of age with an elevated blood lead level, by town for the years 2003- 2007.

It is useful to look at both the counts of children with eBLLs, and the percent (or rate). The latter is the number of the children with eBLLs divided by the number of screened children.

Selected Area	Number Screened	Number EBLL	Percent
Bangor	2,096	41	2.0
Biddeford/Saco	2,229	44	2.0
Lewiston/Auburn	4,162	119	2.9
Portland/Westbrook	5,146	110	2.1
Sanford	1,660	34	2.0
Maine	69,715	913	1.3

Table 1. Number and percent of newly identified children under 6 years of age with an elevated blood lead level for "high density" communities.

Mapping Lead Paint Hazards in our High Density Communities

If we want to empower communities to address the lead paint hazards in their neighborhoods, we need to help them identify areas of high risk.

Mapping where a child was living when identified as having an elevated blood lead level is one way to identify high risk neighborhoods.

The 123rd Maine Legislature amended State Law to make it possible to share address information that relates to the home where an environmental lead hazard or a case of lead poisoning has been identified.(3)

This new law makes it possible to share maps like the one below for Lewiston/Auburn, with the effected communities. This in turn helps them to target local interventions made possible with new support from the Lead Poisoning Prevention Fund.(4)

The address data used to make maps can also be linked with property tax records to identify whether housing is rental or privately owned.

"More than 80% of the children in our five high density areas for lead poisoning live in rental housing."

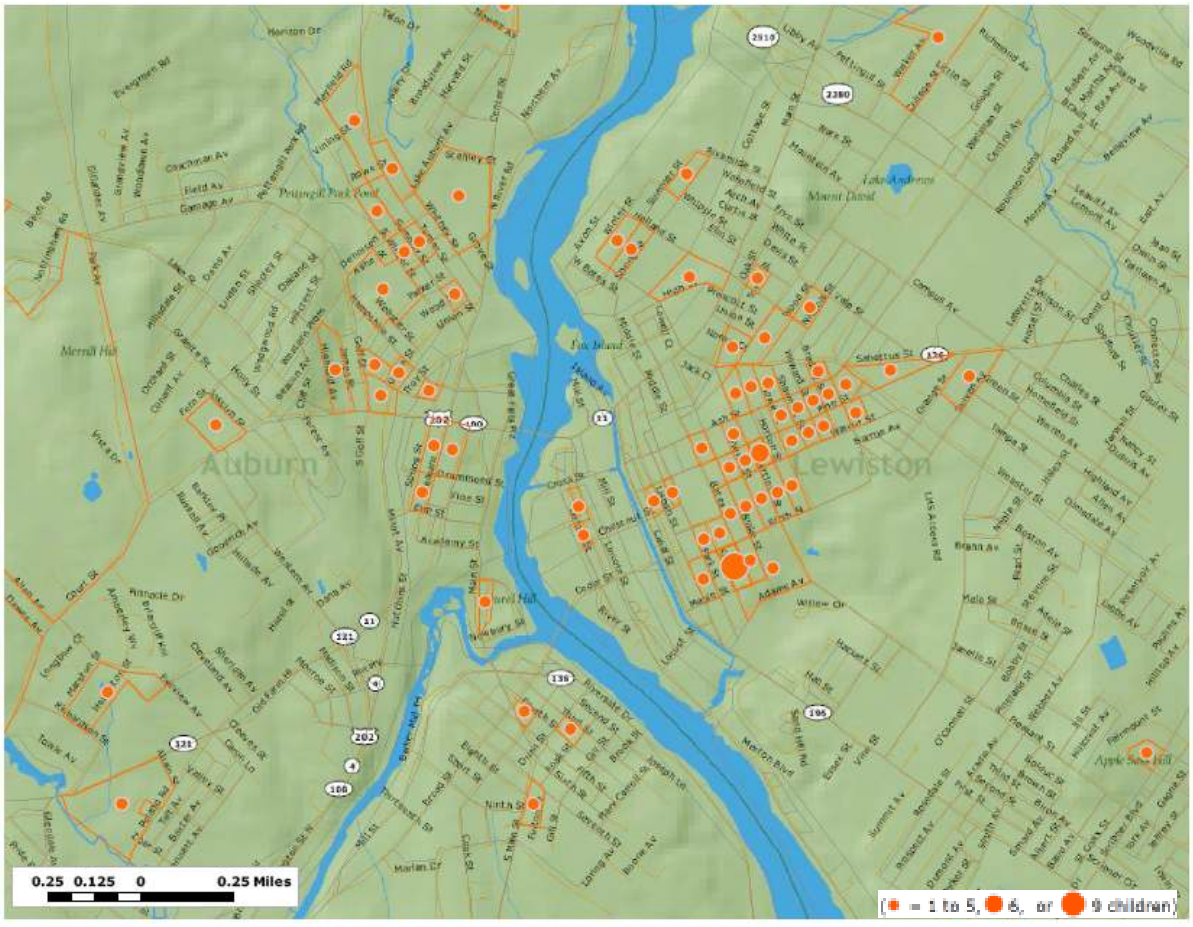

FIGURE 6. Map showing the number of all newly identified children with an elevated blood lead level for census block groups within the Lewiston/Auburn area for the years 2003-2007.(5)

Mapping the Location of Homes Built Before 1950 in our High Density Communities

Lead paint in older homes is the number one cause of childhood lead poisoning. Housing built before 1950 is generally of higher concern. Prior to this time, paint was more likely to contain high amounts of lead.

The sale of paint containing lead was banned in 1978, and thus homes built later than this date are considered unlikely to have lead paint hazards.

Mapping areas with a higher proportion of homes built before 1950 can be used as another indicator for targeting community-based interventions, such as efforts to enhance blood lead screening rates or lead dust testing.

Maps, such as the one below, have been prepared for each of the five Maine communities with a high density of children with elevated blood lead levels.

"In a small survey, Maine children were found to be up to three times more likely to have a blood lead level greater than 5 ug/dL if they lived in pre-1950 housing, as compared to other housing." (7)

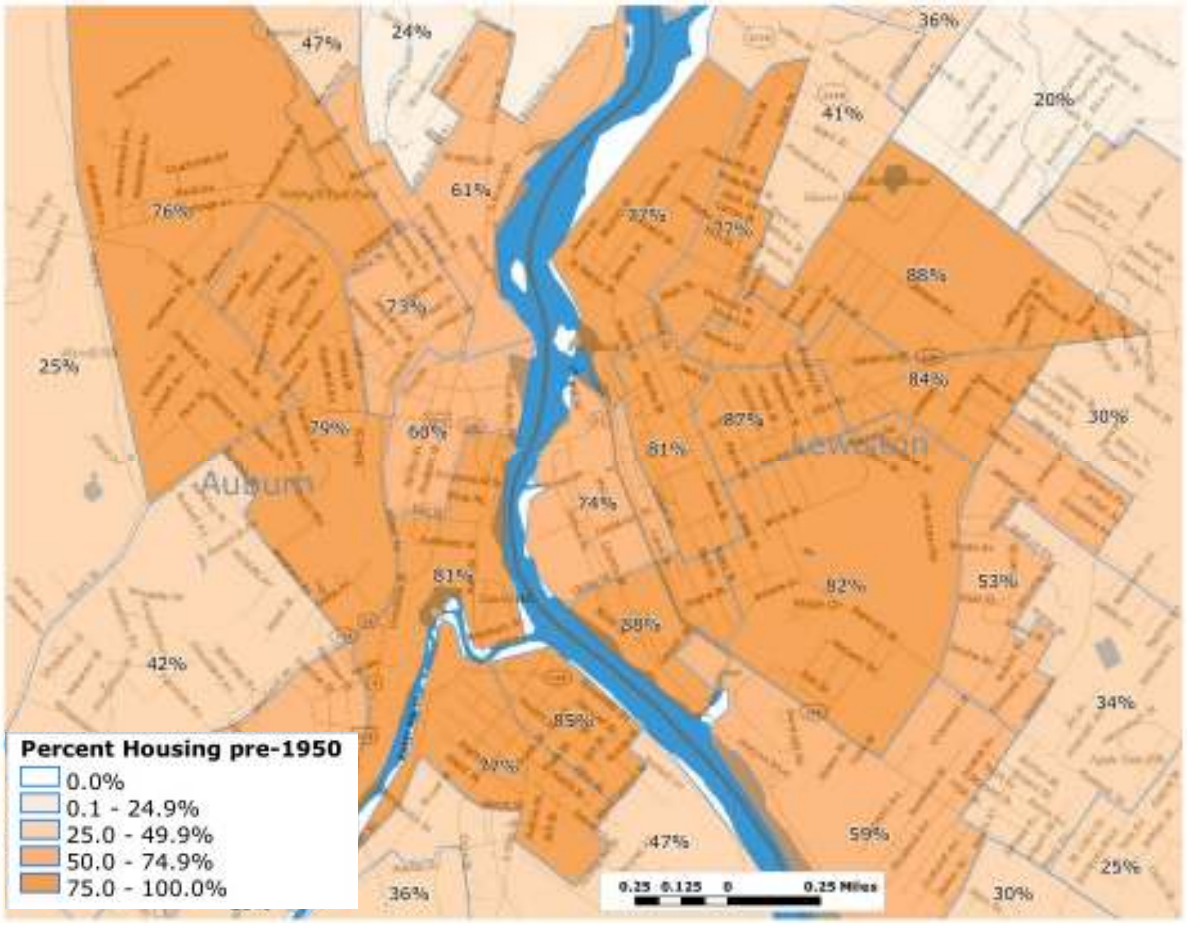

FIGURE 7. Mapping of the percent of pre-1950 housing stock by census block group within the Lewiston / Auburn area.

Actions that Make Lead Paint Hazards more Dangerous

A pre-1950 home with lead paint that is in good repair, structurally sound and well maintained presents little risk of causing a lead poisoned child. However, if these lead paint surfaces are disturbed during a home renovation project lacking proper safeguards, lots of dangerous lead dust can become generated.

Since 2003, we have performed over 130 environmental investigations of homes with a lead poisoned child. In about a third of these homes, a home renovation project had recently occurred and lead dust hazards were present. Almost all of these renovations were performed by the owner rather than a hired contractor.

A worker who comes in contact with lead paint may unknowingly carry lead dust on their clothes and deposit lead dust in the family car or in the home. In a small survey, Maine children with a parent in a job with a high risk of lead exposure was 6 times more likely to have a blood lead level above background than children without.

"In the past year, five lead poisoned children were identified where lead dust on a car seat was the only hazard.".[7]

"Workers exposed to lead paint can carry lead dust on clothing and footwear into their family automobiles and homes. This "take home lead" is emerging as an important risk for a child having an elevated blood lead level."

"About a third of identified lead poisoned children live in a home that has undergone recent renovation work.

These home renovations are almost always being done by the property owner, not a contractor." [7]

Disparities in Lead Poisoning

Children from low-income families are at higher risk of becoming lead poisoned than other children. Low-income families are more likely to live in older housing with deferred maintenance.

This is why federal and state laws require that all Medicaid-eligible children should receive a blood lead screening test at ages 1 and 2 years.

Among children screened for blood lead, those on MaineCare are about twice as likely to have an elevated blood lead level as children who are not enrolled.

Many new refugee and immigrant families have been moving into some of our high density areas that are known to have housing with lead paint hazards. The Somali community in Lewiston is one example.

"Children on MaineCare are about twice as likely to have an elevated blood lead level upon screening than children not on Maine Care."

"For the year 2007, 20 out of the 37 children found to have an elevated blood lead level and living in Lewiston, were children from refugee and immigrant families." (7)

MAINE CHILDHOOD LEAD POISONING PREVENTION PROGRAM

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The two pictures of lead poisoning in Maine

The Maine Childhood Lead Poisoning Program in collaboration with the Environmental and Occupational Health Programs have recently completed over two years of intensive compilation and analysis of Maine's lead poisoning surveillance data.

Two pictures of lead poisoning in Maine are becoming apparent. One of rental stock in our older cities and towns, predominantly occupied by low income families. Here, the picture of lead poisoning looks very similar to many other urban areas of the U.S.

The other picture is that of rural lead poisoning. This picture is less clear — we understand the risk factors for rural lead poisoning less well. Rural lead poisoning appears to mostly involve owner occupied housing.

Lead poisoning in Maine is roughly split between these two pictures — with about half of identified cases falling into each picture.

Importantly, what we are learning is being used to target new education and outreach efforts aimed at eliminating childhood poisoning; efforts made possible by the Lead Poisoning Prevention Fund.

End Notes .....

(1) The estimate that there are roughly 1000 Maine children under age 6 years with an elevated blood lead level is based on extrapolating results from a national survey of children randomly tested for blood lead. See http://www.cdc.gov/exposurereport/pdf/factsheet_lead.pdf.

(2) ***"newly identified children"*** ...the word "newly" is used to make it clear that these are new cases of children with an elevated blood lead identified within a specific period of time (e.g., a year). This is a measure of incidence. Incidence should not be confused with prevalence, which is a measure of the total number of cases in a population.

(3) Public Law 2008 Chapter 628

(4) The ***Lead Poisoning Prevention Fund*** was established by the 121st Maine Legislature and funded by a $0.25 per gallon fee on all paint sold in the State. The fee is assess to the paint brand label owner. The fund is to be allocate to support education, outreach and training to identify and reduce lead paint hazards.

(5) A ***census block group*** is a geographical unit used by the United States Census Bureau. It is the smallest geographical unit for which the Census Bureau publishes sample data. Generally a block group contains between 600 and 3,000 people, with an optimum size of 1,500 people.

(6) The Maine Environmental and Occupational Health Programs undertook a survey of 739 Maine families that had child recently screening for an eBLL. The survey assessed risk factors for having a blood lead level ob 5 micrograms per deciliter or higher.

(7) Data on the presence of renovation work in homes of children with an eBLL, as well as data on racial and ethnic group status, comes from the Maine Childhood Lead Poisoning and Prevention's case management investigations.